

Reduction of antibiotics after implementing PCV2 vaccination on 460 sow Dutch pigfarm

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Abstract

The antibiotic use in the food producing business in the Netherlands is one of the highest in the EU and has great governmental attention. Vaccination can play a vital role in the reduction of the use of antibiotics and at the same time improve the technical performance. Production data of a 460 sow farm was retrospectively reviewed from January 2008 until December 2009. Begin 2008 the farm expanded their fattening unit from 1900 to 3500 places. At the same time with this expansion, big health problems were seen in the fattening unit, resulting in a high number of runts, mortality, lung problems and big difference in uniformity. These problems did not resolve although a lot of antibiotics were used. In August 2008 PCV2 was diagnosed as primary agent by multiple necropsies in pigs of 12 to 17 weeks of age and positive convalescent serology. Ingelvac CircoFLEX® vaccination (1 ml) was implemented (pigs from 15 weeks backwards to 5 weeks of age were vaccinated at start; from that point pigs from 5 weeks of age for convenience reasons). Continuous flow data was used for evaluation, on monthly basis: 8 months before vaccination- transition period of 4 months – 12 months of vaccinated pigs. A clear improvement was seen in growth (654 vs 747 vs 834 g/d) and a reduction of mortality (4,39 vs 4,9 vs 2,20 %). The use of antibiotics was measured by Defined Daily Dosages (DDD), the standard method used in the Netherlands to compare antibiotic use in time, and between farms. At the same time the production parameters improved, the amount of antibiotics used reduced strongly by -39% in the fattening unit (49,87 vs 45,12 vs 30,27 DDD). The vaccinated pigs of the last 8 months had a further improvement in growth, mortality and antibiotic use (18 DDD).

Introduction

The antibiotic use in the food producing business in the Netherlands is one of the highest in the EU (1,2) and has come under greater governmental attention the last years (3). Vaccination against different diseases can play a vital role in the reduction of the use of antibiotics and at the same time improve the technical performance, resulting in a better economical payoff for the primary producer (4, 5). For PCV2 it is known it can have an immunosuppressive effect (6) and as a result of this secondary (bacterial) infections can have a bigger impact. This study looks at the technical performance and the antibiotic use in the fattening unit following the introduction of a PCV2 vaccine in the nursery.

Material and Methods

Production data of a 460 sow farm was retrospectively reviewed for the period January 2008 until December 2009. Begin 2008 the farm expanded their fattening unit from 1500 to 3500 places (closed herd). At the same time with this expansion, big health problems were seen in the fattening unit, resulting in a high number of runts, mortality, lung problems and big difference in uniformity. These problems did not resolve although a lot of antibiotics were used. In August 2008 PCV2 was diagnosed as primary agent by multiple necropsies in pigs of 12 to 17 weeks of age (with high viral load) and positive convalescent serology. Immediately Ingelvac CircoFLEX® vaccination (1 ml) was implemented (pigs from 15 weeks backwards to 5 weeks of age were vaccinated at start; from that point pigs from 5 weeks of age for convenience reasons). Continuous flow technical data was used for evaluation, on monthly data basis: 8 months before vaccination- transition period of 4 months – 12 months of vaccinated pigs. The following parameters were evaluated over time: average daily gain (ADG), mortality and antibiotic use, over the 3 defined periods. The use of antibiotics was measured by Defined Daily Dosages (DDD), the standard method used now in the Netherlands to compare the antibiotic use in time, and between farms (2, 7, 8).

Results

For the 3 consecutive periods there was an increase of the growth (654 vs 747 vs 834 g/d) and a reduction of mortality (4,39 vs 4,9 vs 2,20 %; Figure 1). This was also reflected in clinical healthier pigs, with improved uniformity at time of slaughter. At the same time the production parameters improved, the amount of antibiotics used reduced strongly by -39% (49,87 vs 45,12 vs 30,27 DDD; figure 2). The vaccinated pigs of the last 8 months had a further improvement in the antibiotic use (18 DDD) compared with the first batch of vaccinated pigs after start.

Figure 1: ADG (g/day) and % mortality on monthly basis before and after implementation of CircoFLEX®

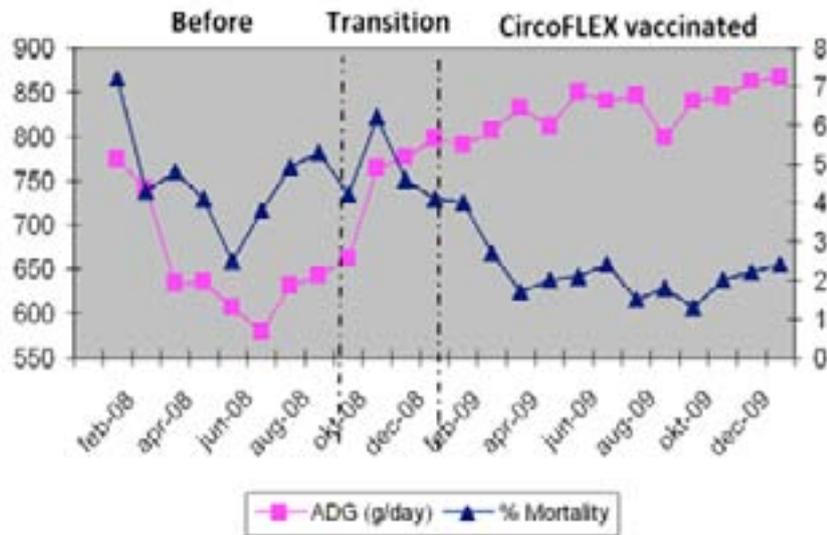
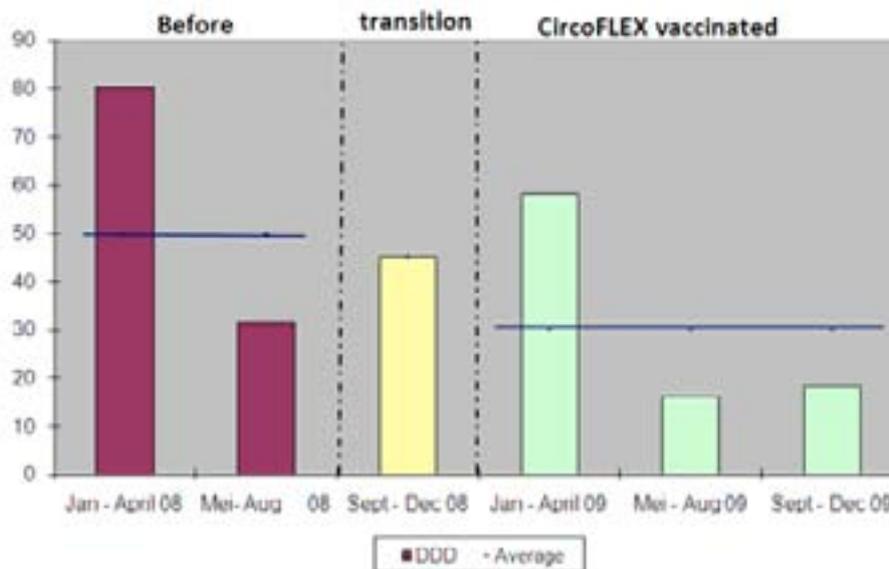


Figure 2: Antibiotic use (DDD) on 4 months period before and after implementation of CircoFLEX®



Discussion and conclusion

For PCV2 it is known it can have an direct impact on the technical performance of the pig but also, as it can have an immunosuppressive effect (6) and as a result of this, secondary (bacterial) infections can have a bigger impact. The introduction of PCV2 piglet vaccination with Ingelvac CircoFLEX resulted in a clear improvement of the technical results, improving average daily gain and reducing mortality. At the same time, comparing the 8 month before vaccination with 12 month after vaccination was implemented, antibiotic usage was reduced by 39%. This decline in antibiotic usage might be explained by a reduced impact of secondary bacterial infections in PCV2 vaccinated pigs. Including the transition period, data was reported for 24 month. The antibiotic use fluctuates over time, being related to a seasonal effect affecting this farm, with a higher incidence of coughing (mainly due to APP) beginning of the year (January to April). For

each 4 month period observed the use of antibiotics was lower in vaccinated animals compared to the period before, demonstrating the consistent efficacy of vaccination independent of the seasonal effect. The results on this farm are in line with other reports (9,10) showing that by controlling PCV2 with vaccines can help in reducing the use of antibiotics and are a useful tool for the farmer to produce safe food, demanded by the consumers and politics.

References

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